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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,879	01/23/2006	Naoyuki Takamatsu	72096	7943
23872	7590	10/31/2007		
MCGLEW & TUTTLE, PC P.O. BOX 9227 SCARBOROUGH STATION SCARBOROUGH, NY 10510-9227			EXAMINER GOUDREAU, GEORGE A	
			ART UNIT	PAPER NUMBER
			1792	
			MAIL DATE	DELIVERY MODE
			10/31/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/565,879

Applicant(s)

TAKAMATSU, NAOYUKI

Examiner

George A. Goudreau

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1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 9-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 9, 11 and 14-17 is/are allowed.
- 6) ☒ Claim(s) 10, 12-13, and 18-23 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*George A. Goudreau*  
GEORGE GOUDREAU  
PRIMARY EXAMINER  
10-071

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutomu (JP 11-111,657) further in view of Matsuo et. al. (JP 2003-200,347).

Tsutomu discloses a process for cmp polishing an Al-Cu layer on a wafer down to the surface of an ILD on the wafer. They employ a cmp slurry, which contains (10-20) wt. % globular (i.e.-spherical) silica, D.I. H<sub>2</sub>O, aluminum nitrate, and etc. The cmp slurry has a neutral pH=(6-8). This is discussed specifically in the abstract; and discussed in general on pages 1-8. This is shown in figures 1-7. Tsutomu fails, however, to specifically disclose the following aspects of applicant's claimed invention:

- the specific collection of excess polishing slurry after the cmp polishing step with the subsequent adjustment of the pH of the collected cmp slurry after it has been added to the cmp slurry storage (i.e.-supply) means;

- the specific cmp polishing process parameters which are claimed by the applicant; and

- the specific usage of an unwoven type polishing cloth with the specific Asker hardness, which is claimed by the applicant

Matsuo et. al. teach that it is desirable to recycle, and regenerate spent cmp slurry used to polish a wafer by collecting the excess, spent, cmp slurry, adjusting the pH of the collected cmp slurry, filtering out particles outside a targeted size range, and re-using the regenerated cmp slurry to cmp polish subsequently processed wafers. This is discussed specifically in the abstract; and discussed in general on pages 1-5. This is shown in figures 1-7.

It would have been obvious to one skilled in the art to recycle, and regenerate the excess, spent, cmp slurry in the process which is taught by Tsutomu based upon the teachings of Matsuo et. al. that it is desirable to do such. Further, this would desirably provide a means for reducing operating costs by reducing the amount of cmp slurry, which is consumed during the cmp processing runs. It would also desirably provide a means for reducing processing costs by reducing the amount of material, which must be waste, treated for disposal.

It would have been obvious to one skilled in the art to employ an unwoven polishing cloth as the polishing pad in the cmp polishing process, which is taught above,

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based upon the following. The usage of such a polishing pad is conventional or at least well known in the cmp polishing arts. (The examiner takes official notice in this regard.) Further, this simply represents the usage of an alternative, and at least equivalent means for conducting the cmp polishing process, which is taught above to the specific means, which are taught above.

It would have been prima facie obvious to employ any of a variety of different cmp polishing parameters in the cmp polishing process which is taught above including those which are specifically claimed by the applicant. These are all well-known variables in the plasma etching art, which are known to affect both the rate and the quality of cmp process. Further, the selection of particular values for these variables would not necessitate any undo experimentation, which would have been indicative of unexpected results.

Alternatively, it would have been obvious to one skilled in the art to employ the specific process parameters which are claimed by the applicant in the cmp polishing process which is taught above based upon *In re Aller* as cited below.

Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. ≡ In re Aller, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA).

Further, all of the specific process parameters, which are claimed by the applicant, are results affective variables whose value are known to affect both the rate, and the quality of the cmp polishing process.

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4. Claims 10, 12-13, 19, 21, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-The wording used in claim 12 is written in a very confusing manner, and should be reworded. (i.e.-Is the rough polishing step the primary polishing step, and the mirror polishing step the secondary polishing step?);

-The wording used in claim 13 is written in a very confusing manner, and should be reworded. (i.e.-This is especially true as it related to amended claim 12 upon which it depends.);

-Claims 19, and 21 are redundant upon each other.; and

-In claim the claims, the usage of the term "predetermined" is vague, and indefinite.

5. Claims 1-4, 9, 11, and 14-17 are allowed.

6. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

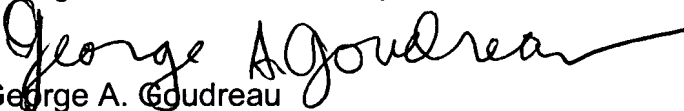
§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication should be directed to examiner

George A. Goudreau at telephone number 571-272-1434.

A handwritten signature in black ink that reads "George A. Goudreau". The signature is written in a cursive style with a long horizontal line extending from the end.

George A. Goudreau

Primary Examiner

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